

# User manual



## Hydraulic natural stone cutter

**Type: AL 90KSH 40**

ALMI Machinefabriek B.V., Vriezenveen  
Doc.no.: 100287-HB-05 AL90KSH 40 ENG  
Revision and revision date: 2-03-11-2014

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## 1. Foreword

*This foreword contains general information about and for this user manual.*

### 1.1. Name of machine

The name of the machine is "Hydraulic natural stone cutter".

### 1.2. Warning

Read this user manual carefully before use and before maintenance of the machine is carried out. Only then is optimal safety ensured. The machine may only be operated and maintained by personnel who have received special training.

There are moving parts on the machine!

For this reason, the machine must always be switched off and the electrical supply must be disconnected before maintenance and/or repairs are carried out.

Always be careful of the moving, sharp and/or protruding parts; they can cause injury!

While cutting, always remain at a safe distance.

### 1.3. Target group for each chapter

This user manual is intended to provide information to the persons/departments listed below.

- the owner
- the operator
- the maintainer

Next to the heading of each chapter is indicated for which of the groups described above the chapter is intended. Table 1.3-1 provides an overview of the target groups for each chapter.

Chapter	Title	Owner	Operator	Maintainer
-	Table of contents	•	•	•
1	Foreword	•	•	•
2	Introduction	•	•	•
3	Safety regulations	•	•	•
4	General description of the machine	•	•	•
5	Transport, storage and setup of the machine			•
6	Operation of the machine		•	•
7	Maintenance of the machine			•
8	Trouble		•	•
9	Disposal of the machine	•		•

**Table 1.3-1: Overview of the target groups for each chapter**

### 1.4. Symbols

The safety and caution symbols shown below are used in this document.



The information indicated by this symbol warns you of potential problems. Furthermore, the symbol warns you that you can seriously injure yourself or that you can seriously damage the machine.

### 1.5. Re-ordering the user manual

Extra copies of the user manual can be ordered from ALMI Machinefabriek BV of Vriezenveen. When ordering, indicate the document number and the number of copies. The document number is indicated in the footer area.

### 1.6. Deficiencies in this user manual

This user manual was prepared with the greatest possible care. Should you, nonetheless, find inaccuracies or deficiencies in the text, notify ALMI Machinefabriek BV of the problem.

## 2. Introduction

*This chapter provides basic information about the machine and the accompanying user manual. This chapter is intended for the owner, the operator and the maintainer of the machine.*

### 2.1. The user



Read this user manual carefully before use and before maintenance of the machine is carried out. Only then is optimal safety ensured.

The machine may only be operated by qualified personnel. The operator must read the chapters indicated in 1.3 carefully.

Maintenance of the machine may only be carried out by specially trained personnel from the maintenance department. The maintainer must read the chapters indicated in 1.3 carefully.

### 2.2. The manufacturer

The manufacturer of the machine is:

ALMI Machinefabriek BV  
Wierdenseweg 82-86  
7671 JK Vriezenveen  
The Netherlands  
T+31(0)546 561 353  
F+31(0)546 564 465


### 2.3. Machine identification

The machine is provided with the CE-mark. This is shown on the type plate. See Figure 2.3-1.

The CE-mark indicates that this machine satisfies the fundamental health and safety requirements of the European Union. Also refer to the warning in section 1.2.

In addition to the CE-mark, the data indicated below is also shown on the type plate. See also Figure 2.3-1.

- Name and address of the manufacturer
- Type indication
- Year of manufacture
- Serial number
- Required supply voltage
- Weight

ALMI Machinefabriek B.V.		Pump specifications		
Type:	AL90KSH40	Voltage:	110	
Year of manufacture:	2014	Hz:	60	
Serial no.: listed on the crosshead		Weight	500 kg	

**Figure 2.3-1: Sample type plate with CE-mark**

For the location of the attached CE-mark and type plate, see Figure 2.3-2.

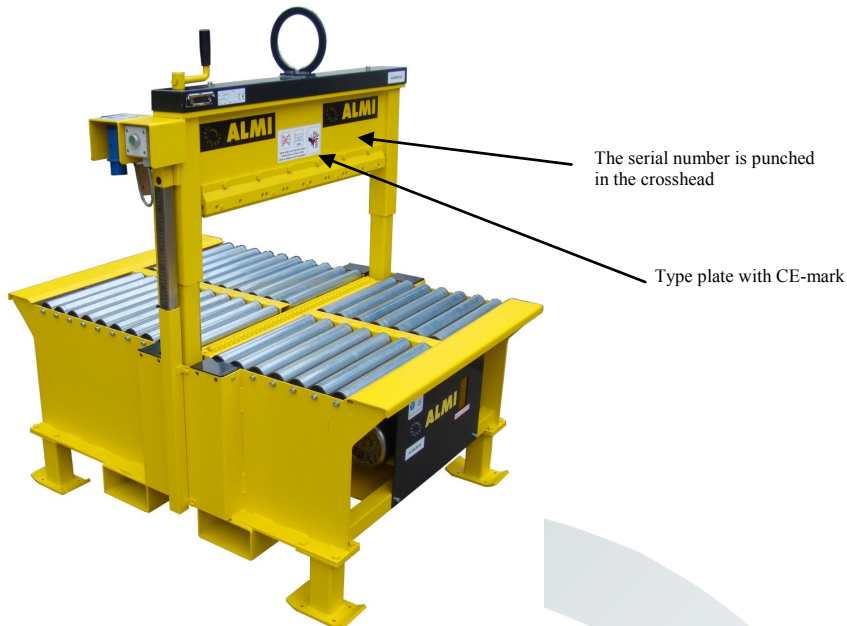


Figure 2.3-2: Location of the type plate and serial number

#### 2.4. Function of the machine

The function of the machine is the cutting of stone.  
It is forbidden to use the machine for purposes other than the cutting of stone products.

#### 2.5. Machine options

There is no optional equipment that can be added to the existing version of the machine.

#### 2.6. Liability

When injury or harm to persons or damage to the machine or products is the result of not following these operating and maintenance instructions, ALMI Machinefabriek BV cannot be held liable.

#### 2.7. Service

For service contact your dealer or your own maintenance department.

#### 2.8. Warranty conditions

- art. 1 If within 12 months of delivery ALMI Machinefabriek BV is notified of deficiencies in the delivered machine that are caused by defects in materials or workmanship and is provided with the serial number and the original receipt, ALMI will repair these defects.
- art. 2 All warranty obligations expire if:
  - repairs or modifications are made to the machine by others, without instruction from ALMI, in an incompetent manner;
  - non-original parts are used;
  - the damage or defects are the result of connecting the machine in a manner other than intended, incompetent use, or failure to follow the regulations and instructions for use;
  - the deficiencies are the result of normal wear of the machine.
- art. 3 ALMI reserves the right to have work on the machine carried out by third parties during and after the warranty period.

### 3. Safety regulations

*This chapter provides information concerning the general safety regulations. This chapter is intended for the owner, the operator and the maintainer of the machine. Read this chapter carefully before use of the machine and before carrying out repairs on the machine.*

#### 3.1. Safety provisions

##### 3.1.1. General

**For the exact location of the various provisions, see**

Figure 4.2-1.

It is absolutely forbidden to remove or disable the safety provisions.

##### 3.1.2. Emergency stop

The machine is not equipped with an emergency stop provision.

An emergency stop does not contribute to a safer work situation.

##### 3.1.3. Safety shields

The machine has no external moving parts except the upper blade.

To protect it from external contaminants, such as rain, dirt and falling debris, the hydraulic unit is enclosed in a separate housing.

Only personnel that have received sufficient instruction may open safety shields to perform maintenance and/or repairs. Also refer to section 1.3 "Target group for each chapter".



### 3.2. Warning symbols on the machine

The following warning symbols can be found on the machine. For the location of the warning symbols on the machine see Figure 3.2-1

It is absolutely forbidden to remove the warning symbols or make them unreadable by any means.

Worn warning symbols must be replaced in a timely manner.



**Sticker 1: Be careful to avoid injury to the hand!**



**Sticker 2: Use eye and hearing protection**



**Sticker 3: Read the user manual first**



**Sticker 4: Only transport the machine in the upright position**

Stickers 2, 3 and 4



Sticker 1: on front and back

**Figure 3.2-1: Warning symbols on the machine**



### 3.3. General safety regulations

Although the machine satisfies the fundamental health and safety requirements of the European Union, dangerous situations can always occur. Always remain alert for possible dangerous situations. Be careful of projecting portions of the machine.

At a minimum, the following safety regulations must be followed:

- Never engage power to the machine if any person is in contact with the machine in a dangerous manner.
- Never start the machine if any person is in contact with the machine in a dangerous manner.
- Switch off the machine before performing maintenance. Do so by disconnecting the mains plug.
- Make sure that unauthorised persons cannot use the machine after you have left the work area. Disconnect the mains plug and store the extension cord.
- Follow the warnings and indications on the machine. For the explanation of the symbols, see section 3.2.



**Always think of the safety of yourself and others!**

### 3.4. The operator

The machine may only be operated by personnel who are qualified to do so. Personnel that have this qualification are referred to in the rest of this user manual as the operator. As operator of the machine, you must be aware of the information that is relevant for you. Also refer to section 1.3 "Target group for each chapter". The operator is not permitted to perform operations that are not indicated to be intended for the operator. Comply with the safety regulations in this user manual. Do not deviate from the safety regulations. This can result in danger.

### 3.5. The maintainer

Only personnel from the maintenance department who have received special training may carry out maintenance of the machine. Personnel that have this qualification are referred to in the rest of this user manual as the maintainer. As maintainer of the machine, you must be aware of the information that is relevant for you. Also refer to section 1.3 "Target group for each chapter". Comply with the safety regulations in this user manual. Do not deviate from the safety regulations. This can result in danger.

### 3.6. Setup of the machine

Make sure that the machine is horizontal and stable during use.

### 3.7. The noise emission of the machine

The noise emission during cutting is highly dependent on the material of the stone that is to be cut.

The use of good hearing protection is required.

### 3.8. Maintenance of the machine

The machine must be in a sufficient state of repair that no dangerous situations can occur. The troubleshooting chart is provided in chapter 7. Use only original parts.

### 3.9. Summary of the safety regulations

- The machine may only be operated by qualified personnel.
- As operator of the machine, you must be aware of the information that is relevant for you in these operation and maintenance regulations. Refer to section 1.3 "Target group for each chapter".
- The operator is not permitted to perform operations that are not indicated to be intended for the operator.
- As maintainer of the machine, you must be aware of the information that is relevant for you in these operation and maintenance regulations. Refer to section 1.3 "Target group for each chapter".
- Always remain alert for possible dangerous situations. Be careful of projecting portions of the machine. Be careful with loose clothing and hair.
- Never engage power to the machine if any person is in contact with the machine in a dangerous manner.
- Never start the machine if any person is in contact with the machine in a dangerous manner.
- Switch off the machine before performing maintenance. Do so by disconnecting the mains plug.
- Follow the warnings and indications on the machine. For the explanation of the symbols, see section 3.2.
- It is absolutely forbidden to remove the warning symbols or make them unreadable by any means. Worn warning symbols must be replaced in a timely manner.
- The machine must be in a sufficient state of repair that no dangerous situations can occur. The troubleshooting chart is provided in chapter 7.
- Only sufficiently trained personnel may open protective shields to perform service. Also refer to section 1.3 "Target group for each chapter".

## 4. Description

This chapter provides general information about the machine. *This chapter is intended for the owner, the operator and the maintainer of the machine.*

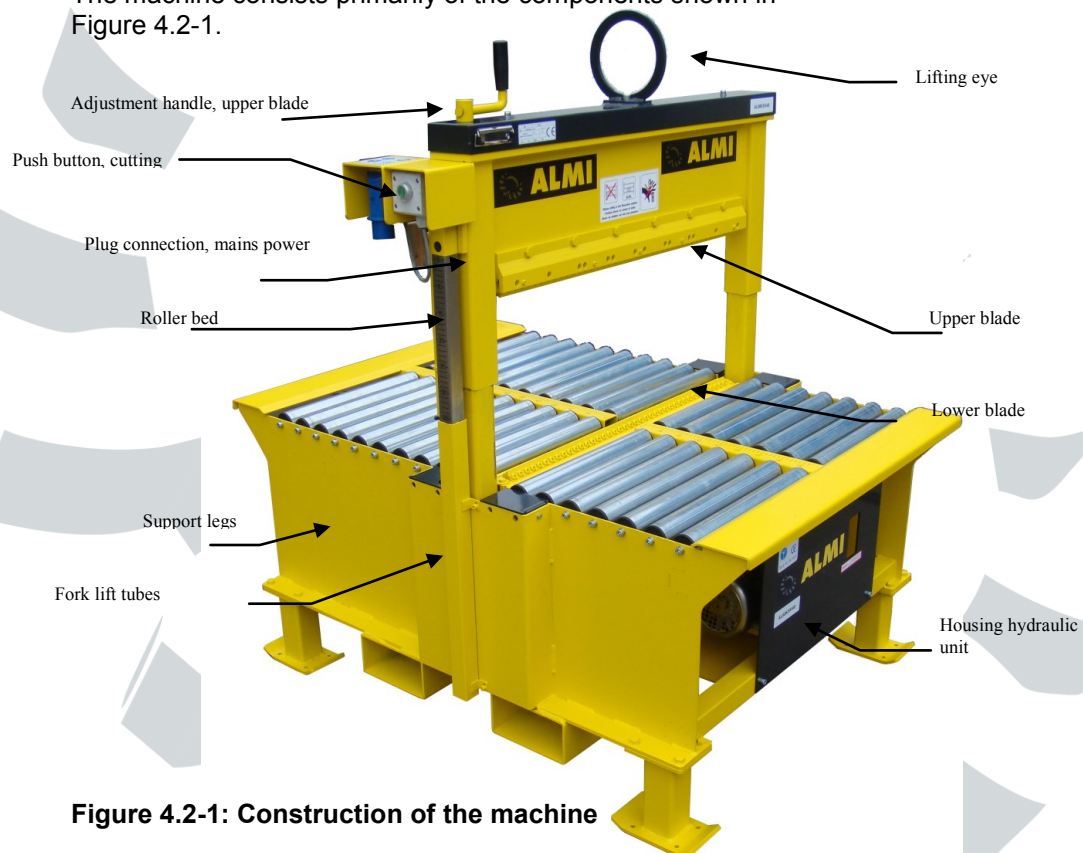
### 4.1. General

This user manual includes an appendix with an exploded view drawing with drawing number AL90KSH40.

This drawing includes a parts list containing the name of each part.

### 4.2. Construction of the machine

The machine consists primarily of the components shown in Figure 4.2-1.



**Figure 4.2-1: Construction of the machine**

#### 4.3. Electrical supply

The machine is equipped with the required male/female plug connection. The required supply voltage is 230VAC. A 3-conductor mains cable is required. For the location and construction of the plug connection, see

Figure 4.2-1.

#### 4.4. Safety provisions and warning symbols

The safety provisions and warning symbols are handled in sections 3.1 and 3.1.

#### 4.5. Controls and adjustments

The machine has the following controls and adjustments as shown in

Figure 4.2-1:

- Handle for adjustment of the upper blade
- Push button for cutting
- Handle for tilting the stone
- Knob for locking the tilting mechanism

#### 4.6. Operation

The natural stone blocks can be placed on the roller bed with the same orientation as on the pallet.

By turning the handle on the top of the machine, the distance between the upper and lower blades can be adjusted. The blades always remain parallel because the spindles on both sides of the blades are connected by a chain drive.

The upper blade must be adjusted so there is 3 to 7 mm of free space above the stone.

As soon as the machine is connected to the mains supply, the hydraulic unit is in "stand-by".

During the cutting movement, the lower blade moves upward. The stroke is 25 mm.

**The lower blade moves upward when the appropriate push button is pushed, see**

Figure 4.2-1.

When the push button is released again, the lower blade returns to its original position.

The upper and lower blades are made of hardened steel and each have 3 cutting edges. When a cutting edge has become dull, the blade can be rotated. To see how the blades are attached, see the exploded view drawing.

#### 4.7. Technical data

Type:	AL 90KSH 40
Serial number	The serial number is punched in the crosshead. See Figure 2.3-2.
Maximum cutting pressure	40,000 kg
Weight	500 kg
Minimum cutting width	w=400 mm
Maximum cutting width	w=900 mm
Range of cutting height	h=40-370 mm
Pump	M319-03-110V
Required supply voltage	110 VAC
Oil	Bio degradable hydraulic oil type: Castrol Carelube HES 32

## 5. Transport, storage, placement and initial setup

*This chapter provides information about the scope of delivery, transport, storage, placement and initial setup of the machine. This chapter is intended for the maintainer of the machine.*

### 5.1. Transport and storage

No special transport equipment is required. The machine weighs 500 kg.  
The machine is equipped with forklift tubes. This makes it simple to move the machine with a forklift.

For vertical lifting, the machine is equipped with a lifting eye.

Make sure that the machine is horizontal and stable during transport.

### 5.2. Placement of the machine

Make sure that the machine is horizontal and stable during use.

### 5.3. Initial setup

Check the oil level in the oil reservoir of the hydraulic unit. The oil level must be between 2 and 3 cm under the top of the reservoir. Top off if necessary.

For the required oil type, see section 4.7.

Connect the machine to the mains supply.

A 3-conductor mains cable is required.

**The machine is equipped with the required male/female plug connection.**

**A 3-conductor mains cable is required. The required supply voltage is 110VAC.**

**For the location and construction of the plug connection, see**

Figure 4.2-1.

After connection to the mains, the machine is ready for use.

## 6. Operation

*This chapter provides information about the operation of the machine. This chapter is intended for the operator and the maintainer of the machine.*

### 6.1. Placement and movement

No special transport equipment is required.

The machine is equipped with forklift tubes and a lifting eye. This makes it simple to move the machine with a forklift or construction crane.

Make sure that the machine is horizontal and stable during use.

### 6.2. Operation in general

The following is a description of regular operation.

Comply with the safety regulations in chapter 3.

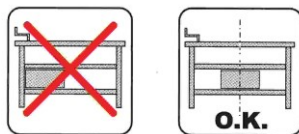
Operation is carried out using the controls and adjustments described in section 4.5.

For additional information also see section 4.6, the "Operation" of the machine.

Clean stone debris from the machine regularly.

### 6.3. Start up

- Connect the machine to the mains supply. See also section 5.3. After connection to the mains, the machine is ready for use.
- Move the stone into the approximate position.
- Use the handle to adjust the upper blade to the correct height above the stone. The space between the upper blade and the stone must be 3 to 7 mm.
- Slide the stone into the correct position, approximately in the middle of the blade. See also the pictogram shown on the machine.



**Steine mittig in der Maschine spalten.**

**Position block on center of knife.**

**Steen op midden van het mes plaatsen.**

**Figure 6.3-1: Pictogram "placing the stone in the middle of the blade"**

- Push the push button to move the lower blade upward.  
BE CAREFUL! Keep body parts out of the area between the stone and the blade!  
When the push button is released, the lower blade returns to its original position.
- Release the push button when the stone has been cut into two pieces. The lower blade returns to its original position.

### 6.4. Shut down

The machine can be shut down by removing the plug from the mains connection.

## 7. Maintenance

*This chapter provides information about the maintenance of the machine. This chapter is intended for the maintainer of the machine.*

### 7.1. Precautionary measures



Maintenance of the machine may only be performed if the machine is voltage free. Comply with the safety regulations in chapter 3.

### 7.2. Checkpoints

The machine must regularly be checked according to the points in Table 7.2-1.

Item number	Description	Time interval
1	clean stone debris from the machine	Daily
2	check machine for oil leakage	Daily
3	check oil level in the oil reservoir of the hydraulic unit. The oil level must be between 2 and 3 cm under the top of the reservoir. If necessary, top off with Bio degradable hydraulic oil Type: Castrol Carelube HES 32	Monthly
4	Replace oil. Bio degradable hydraulic oil Type: Castrol Carelube HES 32 The oil level must be between 2 and 3 cm under the top of the reservoir.	Annually
5	Check the upper and lower blades for wear. If necessary, rotate the blades. A blade has 3 cutting edges. See also the provided exploded view drawing. Steps: - Loosen attachment screws - Rotate blade - Tighten attachment screws.	Monthly
6	Check machine for wear and damage.	Monthly

**Table 7.2-1: Checkpoints and lubrication schedule**

### 7.3. Replacement of components

If the machine requires repair, we recommend that you contact your dealer. If you carry out repairs yourself, you must only use original parts.

When ordering parts, the following information must be provided:

- The machine type number  
The machine type number is indicated on the type plate.
- The machine serial number  
The machine serial number is punched in the crosshead. See Figure 2.3-2.
- The part number with description  
The part number with description is indicated on the exploded view drawing provided with this user manual, drawing number AL90KSH40.



## **8. Trouble**

*This chapter provides information about trouble and trouble indications. This chapter is intended for the operator and the maintainer of the machine.*

### **8.1. General information for trouble**

When trouble occurs, switch off the machine and contact your dealer or your own maintenance department.

Comply with the instructions in chapter 3 and the maintenance instructions in chapter 3.

### **8.2. Trouble indications and signals**

The machine controls do not include trouble indications or other signals.

## **9. Disposal**

*This chapter provides information about the disposal of the machine. This chapter is intended for the owner and the maintainer of the machine.*

The machine must be disposed of in accordance with the legal requirements of the country in which it is used.

The owner is responsible for disposal of the machine.

## EU Declaration of Conformity for machines

(Directive 2006/42/EG art. 6 sec. 2 and Appendix II A)

Manufacturer: **ALMI Machinefabriek BV**  
Address: **Wierdenseweg 82-86**  
Postcode and city: **7671 JK Vriezenveen**

Hereby declares that:

### **The Hydraulic natural stone cutter type number AL 90KSH 40**

- in conformance with the machinery directive 2006/42/EG,
- satisfy the requirements of the following other EU directives:  
  
2006/95/EG – Low-voltage direction, as modified in the directive 73/23/EEG  
2004/108/EG – EMC directive, as modified in directive 89/336/EEC

and that

- the following (portions of) European Standards have been applied:
- NEN-EN-ISO 12100:2010 - Safety of machinery - General principles for design  
- Risk assessment and risk reduction

NEN-EN-ISO 4413:2010 - Hydraulic fluid power - General rules and safety requirements for systems and their components

NEN-EN-IEC 60204-1:2006 Safety of machinery - Electrical equipment of machines -  
Part 1: General requirements.

Completed in Vriezenveen, 04 November 2014

Signature:

A handwritten signature in blue ink, appearing to be 'J.J. Landhuis', with a stylized flourish.

J. J. Landhuis  
General Director